AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1-6. (Canceled)

7. (Currently amended) A method [[of]] for fabricating a Bi-containing film, comprising: forming the Bi-containing film onto a substrate at a deposition rate of 0.1 – 10 μm/min by sputtering in a vacuum chamber[[.]], and

heat processing the Bi-containing thin film at a temperature within a range of 250-270°C.

8. (Currently Amended) The method of claim 7, wherein the Bi-containing film has a MR (magnetoresistance) ratio of approximately 600 % or more at room temperature and not less than 30,000 % at 4 K under a magnetic field of 9T.

9. (Canceled)

10. (Currently Amended) A magnetic field sensor comprising: a Bi-containing thin film as a mesa and a magnetic substance[[,]] at both sides of the mesa as a flux concentrator, wherein the Bi-containing thin film has a MR ratio of approximately 600% or more at room temperature and not less than 30,000% at 4K when a magnetic filed of 9T is applied. ~~wherein a the mesa comprises the Bi thin film fabricated by the method of claim 1 or claim 7 is fabricated as a mesa by photolithography or electron beam lithography, and a the magnetic substance having great a saturation magnetization and a permeability is formed at both plurality of sides of the Bi mesa as a flux concentrator.~~

11. (Currently Amended) A spin FET (spin-polarized field effect transistor), comprising:

a gate;

an insulating layer on a portion of the gate;

a source/drain region at a side of the insulating layer; and

a spin channel comprising [[the]] a Bi-containing film ~~fabricated according to claim 1~~,

wherein the Bi-containing thin film has an MR ratio approximately 600% or more at room temperature and not less than 30,000% at 4 K when a magnetic field of 9T is applied.

12. (Currently Amended) A spin memory device, wherein the spin memory device comprises a gate, a Bi-containing spin channel fabricated by the method according to claim 1 on a portion of the gate and a source/drain region at a side of the spin channel, wherein the spin memory device controls resistance by an external magnetic field,

wherein the Bi-containing spin channel has an MR ratio approximately 600% or more at room temperature and not less than 30,000% at 4 K when a magnetic field of 9T is applied.

13. (Currently Amended) A magnetic field sensor comprising a mesa and a magnetic substance, wherein ~~a~~ the mesa comprises the Bi-containing film fabricated by the method of claim 7, and ~~a~~ the magnetic substance having a saturation magnetization and a permeability is formed at plurality of sides of the mesa as a flux concentrator.

14. (Currently Amended) A spin FET (spin-polarized field effect transistor), comprising:

a gate;

an insulating layer on a portion of the gate;

a source/drain region at a side of the insulating layer; and

a spin channel comprising the Bi-containing film fabricated according to claim 7.

15. (Previously presented) The spin FET of claim 11, wherein the source/drain region is formed at a left or right side of the insulating layer by using magnetic metal or a magnetic semiconductor having great spin polarization.

16. (Previously presented) The spin FET of claim 14, wherein the source/drain region is formed at a left or right side of the insulating layer by using magnetic metal or a magnetic semiconductor having great spin polarization.

17. (Currently Amended) A spin memory device, wherein the spin memory device comprises a gate, a Bi-containing spin channel fabricated by ~~a~~ the method according to claim 7 on a

portion of the gate and a source/drain region at a side of the spin channel, wherein the spin memory device controls resistance by an external magnetic field.

18. (Previously presented) The spin memory device of claim 12 wherein the source/drain region is formed at a side of the spin channel by using magnetic metal or a magnetic semiconductor having a spin polarization.

19. (Previously presented) The spin memory device of claim 17 wherein the source/drain region is formed at a side of the spin channel by using magnetic metal or a magnetic semiconductor having a spin polarization.

20. (Previously presented) The magnetic field sensor of claim 10, wherein the mesa produced by photolithography or electron beam lithography.

21. (Previously presented) The magnetic field sensor of claim 13, wherein the mesa produced by photolithography or electron beam lithography.